



DEFENSE INFORMATION SYSTEMS AGENCY

JOINT INTEROPERABILITY TEST COMMAND

2001 BRAINARD ROAD

FORT HUACHUCA, ARIZONA 85613-7051

20 May 2004

IN REPLY
REFER TO:

Networks and Transport Division (JTE)

MEMORANDUM FOR DISTRIBUTION

SUBJECT: Special Interoperability Test Certification of the Compunetix Mini-CONTEX® Audioconferencing Bridge with Software Release 1.836.c to Support the North American Aerospace Defense Command (NORAD) Alerting System (NAS)

References: (a) DOD Directive 4630.5, "Interoperability and Supportability of Information Technology (IT) and National Security Systems (NSS)," 11 January 2002
(b) CJCSI 6212.01C, "Interoperability and Supportability of Information Technology and National Security Systems," 20 November 2003

1. References (a) and (b) establish the Defense Information Systems Agency, Joint Interoperability Test Command (JITC), as the responsible organization for interoperability test certification. Additional references are provided in enclosure 1.

2. The Compunetix Mini-CONTEX® Audioconferencing Bridge with Software Release 1.836.c, hereinafter referred to as the System Under Test (SUT), meets all of the critical interoperability requirements and is certified for use within the Defense Switched Network (DSN) to support the North American Aerospace Defense Command (NORAD) Alerting System (NAS). Critical interoperability requirements are set forth in reference (c) and testing was conducted using test procedures derived from reference (d). Reference (c) requires that the preset conference bridge meet the minimum port configuration of 10 conferences with 20 conferees simultaneously for both the Multi-Function Switch and End Office Switch. Reference (e) is a memorandum from NORAD requesting a waiver of the minimum port requirements for the SUT to support the NAS with less than 200 ports. Reference (f) is a memorandum from the Joint Chiefs of Staff (J6C) approving this request. Reference (g) establishes the policy and procedure for a waiver request. This certification expires upon changes that affect interoperability, but no later than three years from the date of this memorandum.

3. This certification is based on interoperability testing conducted from 15 through 19 September 2003 by the JITC at the Global Information Grid Test Facility, Fort Huachuca, AZ. The Certification Testing Summary (enclosure 2) documents the test results and describes the test network. Users should verify interoperability before deploying the SUT in an environment that varies significantly from that described.

4. The Functional Requirements used to evaluate the SUT and the interoperability statuses are indicated in table 1.

JITC Memo, JTE, Special Interoperability Test Certification of the Compunetix Mini-CONTEX® Audioconferencing Bridge with Software Release 1.836.c to Support the North American Aerospace Defense Command (NORAD) Alerting System (NAS)

Table 1. SUT Functional Requirements and Interoperability Status

Interface/Signaling	Critical	Certified	Critical Functional Requirements	Met	GSCR Paragraph
T1 CAS (B8ZS/ESF, AMI/SF) DTMF Signaling	Yes ²	Yes	Switch Capacity	Yes ¹	2.2.3
			Conference Originations and Recordings	Yes	2.2.3, 2.2.3.1
			Conference Precedence Level	Yes	2.2.3.2
			Automatic Retrial and Alternate Address	Yes	2.2.3.3
			Bridge Release	Yes	2.2.3.4
			Lost Connection to Conferee or Originator	Yes	2.2.3.5, 5.3.4.7.6
			Secondary Conferencing	Yes	2.2.3.6
			Address Translation	Yes	2.2.3.7
Legend: <div>AMI - Alternate Mark Inversion</div> <div>B8ZS - Bipolar Eight Zero Substitution</div> <div>CAS - Channel Associated Signaling</div> <div>DTMF - Dual Tone Multi-Frequency</div> <div>E1 - European Basic Transmission Rate (2.048 Mbps)</div> <div>ESF - Extended Superframe</div> <div>FR - Functional Requirement</div> <div>GSCR - Generic Switching Center Requirements</div> <div>Mbps - Megabits per second</div> <div>NAS - NORAD Alerting System</div> <div>NORAD - North American Aerospace Defense Command</div> <div>SF - Superframe</div> <div>SUT - System Under Test</div> <div>T1 - Digital Transmission Link level 1 (1.544 Mbps)</div>					
Notes: 1 Reference (f) is a memorandum from the Joint Chiefs of Staff waiving the minimum port capacity of 10 conferences with 20 conferees for the SUT to be used in support of the NAS program. 2 Per reference (c), the SUT can meet the external bridge requirements via one of the following interfaces: Integrated Services Digital Network Primary Rate Interface, CAS T1, or CAS E1. The SUT meets the critical interoperability FRs via a CAS T1. Since CAS T1 is the only interface supported by this conference bridge, it is a critical interface.					

5. JITC distributes interoperability information via the JITC Electronic Report Distribution (ERD) system, which uses Unclassified but Sensitive Internet Protocol Router Network (NIPRNet) e-mail. More comprehensive interoperability status information is available via the JITC System Tracking Program (STP). The STP is accessible by .mil/gov users on the NIPRNet at <https://stp.fhu.disa.mil/>. Test reports, lessons learned, and related testing documents and references are on the JITC Joint Interoperability Tool (JIT) at <http://jit.fhu.disa.mil> (NIPRNet), or <http://199.208.204.125/> (SIPRNet). Information related to DSN testing is on the Telecom Switched Services Interoperability (TSSI) website at <http://jitc.fhu.disa.mil/tssi>.

JITC Memo, JTE, Special Interoperability Test Certification of the Compunetix Mini-CONTEX® Audioconferencing Bridge with Software Release 1.836.c to Support the North American Aerospace Defense Command (NORAD) Alerting System (NAS)

6. The JITC point of contact is Mr. John Hooper, DSN 879-5041, or commercial (520) 538-5041. The e-mail address is hooperj@fhu.disa.mil.

FOR THE COMMANDER:

2 Enclosures a/s

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ADDITIONAL REFERENCES

- (c) Defense Information Systems Agency (DISA), Joint Interoperability and Engineering Organization (JIEO), Technical Report 8249, "Defense Information System Network (DISN) Circuit Switched Subsystem, Defense Switched Network (DSN) Generic Switching Center Requirements (GSCR)," March 1997
- (d) Joint Interoperability Test Command, "Defense Switched Network Generic Switch Test Plan (GSTP)," 17 June 1999
- (e) NORAD/J643, memorandum for the Joint Staff/J6T, "Waiver Request to Support NORAD Alerting System (NAS)," 4 December 03
- (f) Joint Staff/J6C, memorandum for NORAD/J643, "Waiver Request to Support NORAD Alerting System (NAS)," 14 January 04
- (g) Chairman Joint Chiefs of Staff Instruction (CJCSI) 6215.01B, "Policy for Department of Defense (DOD) Voice Networks," 23 September 01

CERTIFICATION TESTING SUMMARY

- 1. SYSTEM TITLE.** Compunetix Mini-CONTEX® Audioconferencing Bridge with Software Release 1.836.c, hereinafter referred to as the System Under Test (SUT).
- 2. PROPONENT.** Defense Information Systems Agency (DISA).
- 3. PROGRAM MANAGERS.** Mr. Howard Osman, GS23, Room 5W23, 5275 Leesburg Pike, Falls Church, VA 22041, E-mail: Osmanh@ncr.disa.mil.
- 4. TESTERS.** Joint Interoperability Test Command (JITC), Ft. Huachuca, Arizona.
- 5. SYSTEM UNDER TEST DESCRIPTION.** The SUT has the capacity to support up to five Digital Transmission Link level 1 (T1) interfaces with a capacity ranging from 24 to 120 ports. The operator console is a personal computer utilizing Microsoft Windows® - based operation and Windows Operator Console administration software. The Maintenance Access Terminal controls the bridge and maintains the database. The SUT features include:
 - Reserving, creating, controlling, and modifying conferences using touch-tone commands or standard web browser over the web.
 - Automatically notifying participants of scheduling conferences through e-mail or fax.
 - Digitally recording conferences for later playback, streaming, or CD-ROM distribution.

The SUT's component configuration is shown in figure 2-1.

6. OPERATIONAL ARCHITECTURE. The deployment of the SUT is shown in figure 2-2 which depicts the Generic Switching Center Requirement (GSCR) Defense Switched Network (DSN) operational architecture. Upon certification, the SUT can be deployed within the DSN to support the North American Aerospace Defense Command (NORAD) Alerting System (NAS).

7. REQUIRED SYSTEM INTERFACES. Reference (c) requires that the preset conference Functional Requirements (FRs) be met with either an internal or external conference bridge. The external conference bridge interface can be met with one of the following interfaces: Integrated Services Digital Network Primary Rate Interface, Channel Associated Signaling (CAS) T1, or CAS European Basic Rate (E1). The SUT meets the critical interoperability FRs via a CAS T1. The FRs and Interoperability statuses are indicated in table 2-1.

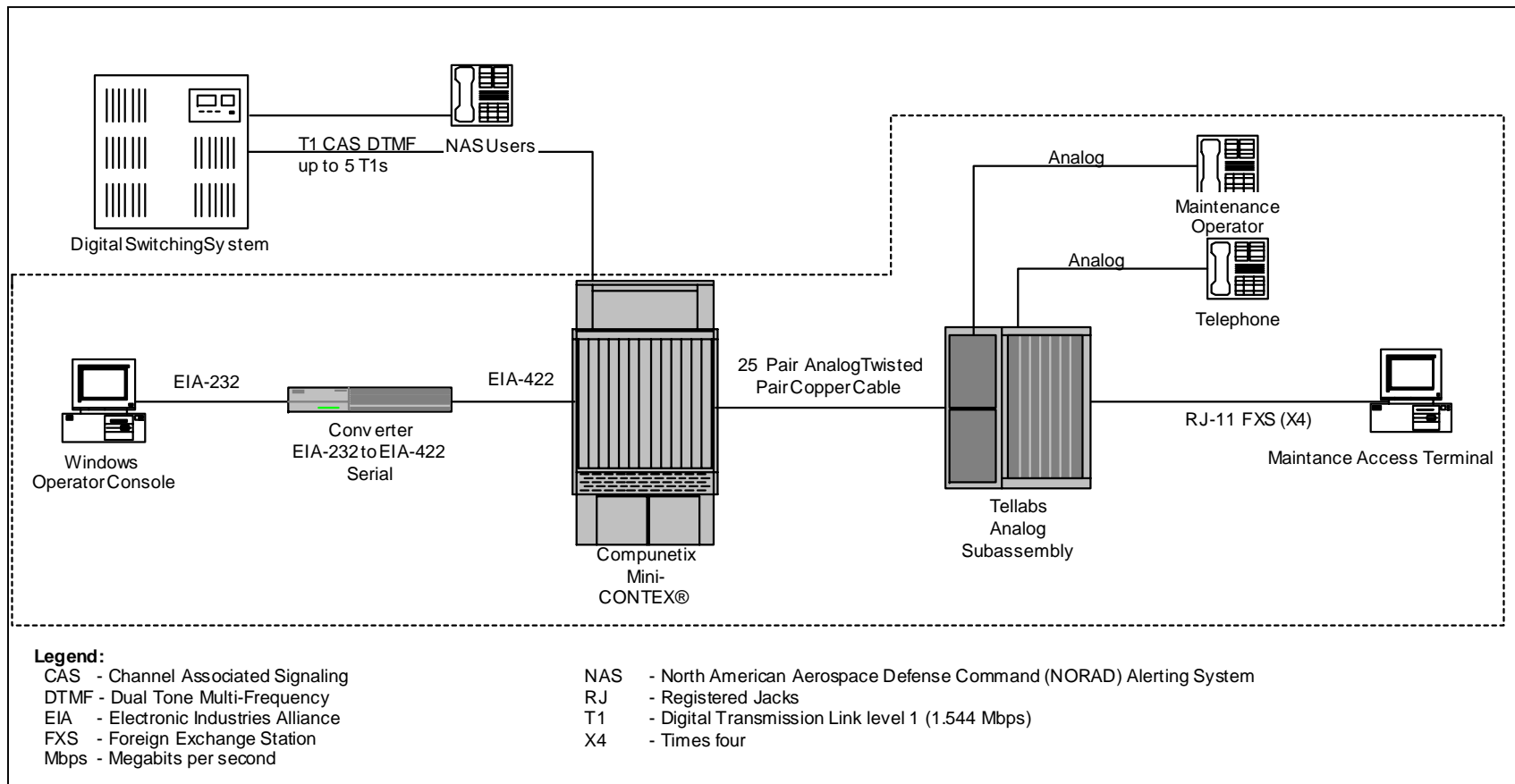


Figure 2-1. Compunetix Mini-CONTEX® Audioconferencing Bridges Component Configuration

Table 2-1. SUT Functional Requirements and Interoperability Status

Interface/Signaling	Critical	Certified	Critical Functional Requirements	Met	GSCR Paragraph
T1 CAS (B8ZS/ESF, AMI/SF) DTMF Signaling	Yes ²	Yes	Switch Capacity	Yes ¹	2.2.3
			Conference Originations and Recordings	Yes	2.2.3, 2.2.3.1
			Conference Precedence Level	Yes	2.2.3.2
			Automatic Retrial and Alternate Address	Yes	2.2.3.3
			Bridge Release	Yes	2.2.3.4
			Lost Connection to Conferee or Originator	Yes	2.2.3.5, 5.3.4.7.6
			Secondary Conferencing	Yes	2.2.3.6
			Address Translation	Yes	2.2.3.7
Legend: <div>AMI - Alternate Mark Inversion</div> <div>B8ZS - Bipolar Eight Zero Substitution</div> <div>CAS - Channel Associated Signaling</div> <div>DTMF - Dual Tone Multi-Frequency</div> <div>E1 - European Basic Transmission Rate (2.048 Mbps)</div> <div>ESF - Extended Superframe</div> <div>FR - Functional Requirement</div> <div>GSCR - Generic Switching Center Requirements</div> <div>Mbps - Megabits per second</div> <div>NAS - NORAD Alerting System</div> <div>NORAD - North American Aerospace Command</div> <div>SF - Superframe</div> <div>SUT - System Under Test</div> <div>T1 - Digital Transmission Link level 1 (1.544 Mbps)</div>					
Notes: 1 Reference (f) is a memorandum from the Joint Chiefs of Staff waiving the minimum port capacity of 10 conferences with 20 conferees for the SUT to be used in support of the NAS program. 2 Per reference (c), the SUT can meet the external bridge requirements via one of the following interfaces: Integrated Services Digital Network Primary Rate Interface, CAS T1, or CAS E1. The SUT meets the critical interoperability FRs via a CAS T1. Since CAS T1 is the only interface supported by this conference bridge, it is a critical interface.					

8. TEST NETWORK DESCRIPTION. The SUT was tested at JITC's Global Information Grid Network Test Facility in a manner and configuration similar to that of the DSN operational environment. Testing of the system's required functions and features was conducted using the test configuration depicted in figure 2-3.

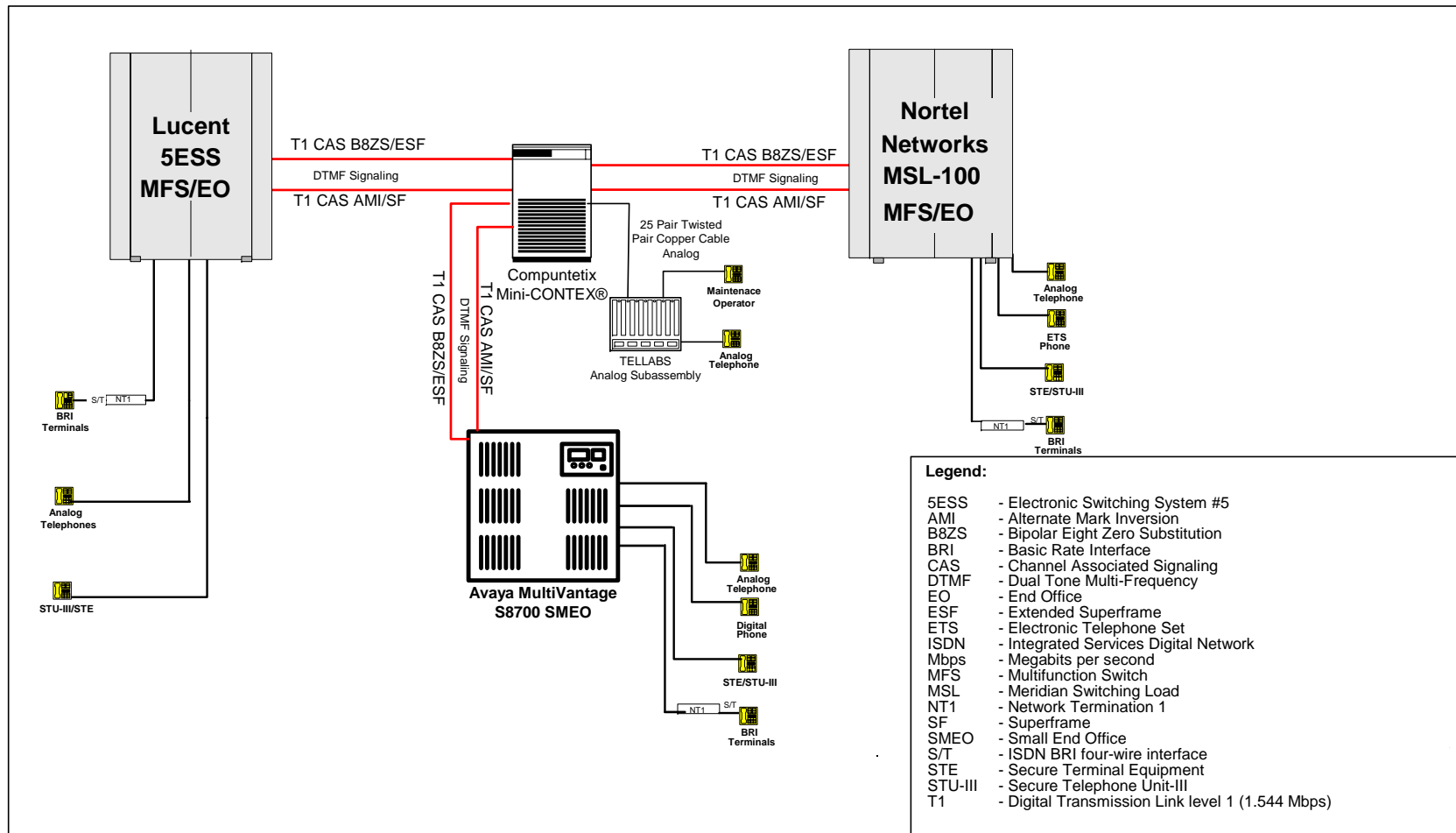


Figure 2-3. Test Configuration

9. SYSTEM CONFIGURATIONS. Table 2-2 provides the system configurations and their respective software used in the test.

Table 2-2. Tested System Configurations

System Name	Hardware/Software Release
Nortel Networks MSL-100	Software Release MSL-17
Compunetix Mini-CONTEX® Audioconferencing Bridge	TELLABS 81632 Analog Subassembly
	MAT- DOS 6.22
	WOC - 2.535.7c
	Line Interface (361 Module) -T1VM358.ABS
	Summation (358 Module) – SUMM1050.ABS
	TDC (319 Module) – TDCM1010.ABS
	Line Interface (364 Module) -T1R43580.ABS
Lucent 5ESS	5E16.2
Avaya MultiVantage S8700	R012IX.00.0.213.0
Legend: 5ESS - Electronic Switching System #5 MSL - Meridian Switching Load	

10. TEST LIMITATIONS. None.

11. TEST RESULTS

a. Discussion

(1) Switch Capacity (GSCR Paragraph 2.2.3). Reference (f) is a memorandum from the Joint Staff that waives the SUT capacity minimum requirement of 10 simultaneous conferences with 20 conferees for use with End Office and Multifunction switches. The SUT is certified for use within the DSN in support of the NAS.

(2) Originations and Recordings (GSCR Paragraphs 2.2.3, and 2.2.3.1).
 The SUT meets the following FRs for Origination and Recordings:

- (a) Conference notification announcement.
- (b) Automatic removal of conference notification announcement two seconds after all conferees answer.
- (c) Automatic disconnect/timeout of conference when no conferees answer within 15-60 seconds.
- (d) Cancellation of conference notification announcement by conference originator by pressing # or the “A” key before all conferees answer.
- (e) Progressive add-on of five nonmember conferees by the conference originator.

(3) Conference Precedence Level (GSCR paragraph 2.2.3.2). The SUT meets the following FRs for Conference Precedence Level:

(a) When a preset conference is initiated, an idle bridge in the desired conference group is initiated.

(b) When all conference bridges are busy, a ROUTINE conference call attempt is connected to line busy tone.

(c) When all conference bridges are busy, a conference call attempt above ROUTINE examines all conference bridges on a preemptive basis, and the conference bridge that is busy at the lowest precedence is preempted for a higher precedence conference call.

(d) When a conference bridge is preempted, a two-second burst of preempt tone is provided to the conferees on the existing conference. The existing connections to the bridge are dropped and the bridge automatically sends an on-hook signal to the associated switch ports to permit the new connections to be established.

(e) When the requested precedence level is equal to or lower than that of the existing conference, the connection is denied and the caller is provided a Blocked Precedence Announcement.

(4) Automatic Retrial and Alternate Address (GSCR paragraph 2.2.3.3). The SUT meets the following FRs for Automatic Retrial and Alternate Address:

(a) Off-hook supervision is returned to the originator from each bridge when all conferees have answered or when the originator has forced the conference.

(b) If answer supervision is not returned from any conferee location within an adjustable interval of 15 to 60 seconds, one automatic retrial is made to the primary conferee address.

(c) Conferees are provided with alternate addresses that the SUT tries when the call fails to complete to the primary address.

(d) When a call to a primary address fails to complete within two trials, the call is directed to an alternate address, if provided, and two call attempts are made to the alternate address.

(5) Bridge Release (GSCR paragraph 2.2.3.4). The SUT meets the following FRs for Bridge Release:

(a) The primary bridge is released when on-hook supervision is received on the originating port of the primary bridge or on all of the other conference bridge ports.

(b) If on-hook supervision is received on the originating port of secondary or tertiary bridges, all subsequent connections and equipment are released.

(c) A conference bridge is released after all attempts at call completion are made and no answers are received on all ports.

(d) A release of conference bridges is such that it is impossible for the bridges to become locked together.

(6) Lost Connection to Conferee or Originator (GSCR paragraph 2.2.3.5). The SUT meets the following FRs for Lost Connection to Conferee or Originator:

(a) If the originator is lost or preempted, the bridge is held up long enough for a two-second preempt tone burst to be given to all conferees.

(b) If a connection to a conferee is lost, due to disconnection or preemption, a distinctive disconnect signal, defined as a one-second burst of conference disconnect tone, is provided to the conference originator.

(7) Secondary Conferencing (GSCR paragraph 2.2.3.6). The SUT meets the following FRs for Secondary Conferencing:

(a) When a conference is activated and two or more of the addressees require a secondary bridge, the address is processed in the normal manner and directed toward the office serving the secondary equipment.

(b) The conference equipment is designed so that it may be used alternatively for primary or secondary conferences.

(c) Identical operational features, such as application and removal of the conference notification recorded announcement, are provided for both primary and secondary conferences.

(8) Address Translations (GSCR paragraph 2.2.3.6). The SUT meets the following FRs for Address Translations:

Translation of the seven-digit conference address is met as follows:

1. The first three or five digits of the address are translated to identify the specific destination numbering plan area and switching center.

2. The first two digits of the four-digit line number are utilized to identify the switching center at which the conferencing equipment is located.

3. The four-digit line number is translated to indicate the particular preset conference arrangement.

b. Test Summary. The SUT, when connected to the interface certified in this letter, meets the critical interoperability requirements for preset conferencing and is certified for use within the DSN for use with the NAS, in accordance with the requirements set forth in reference (c).

12. TEST AND ANALYSIS REPORT. JITC distributes interoperability information via the JITC Electronic Report Distribution (ERD) system, which uses Unclassified but Sensitive Internet Protocol Router Network (NIPRNet) e-mail. More comprehensive interoperability status information is available via the JITC System Tracking Program (STP). The STP is accessible by .mil/gov users on the NIPRNet at <https://stp.fhu.disa.mil/>. Test reports, lessons learned, and related testing documents and references are on the JITC Joint Interoperability Tool (JIT) at <http://jit.fhu.disa.mil> (NIPRNet), or <http://199.208.204.125/> (SIPRNet). Information related to DSN testing is on the Telecom Switched Services Interoperability (TSSI) website at <http://jtc.fhu.disa.mil/tssi>.